

STUDENTS' MISCONCEPTIONS ABOUT CURRENT AND VOLTAGE

BY

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DEGREE IN SCIENCE EDUCATION

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Students' Misconceptions About Current and Voltage" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

PROJECT SUPERVISOR

Date

HEAD OF DEPARTMENT

Date

EXTERNAL EXAMINER

Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

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ABSTRACT

This study examined students' misconceptions about current and voltage, using undergraduate students of the University of Lagos as a case study. The study was guided by three specific objectives: to examine the extent to which respondents exhibit the key attributes of students; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with students and misconceptions. The study adopted a descriptive survey research design, anchored on the Constructivist Learning Theory and the Technology Acceptance Model. A sample size of 400 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 372 questionnaires were found valid for analysis. Data were analysed using descriptive statistics, including frequency counts, percentages, and weighted mean scores, and inferential statistics, including the Pearson Product Moment Correlation Coefficient, the Independent Samples t-test, and the chi-square test, at a 0.05 level of significance. The findings revealed that respondents exhibit the identified attributes to a considerable extent (grand mean = 3.18). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.478$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 5.96, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.33$, $p > 0.05$). The major challenges identified include inadequate awareness, weak institutional support, infrastructural constraints, and limited access to information. The study recommends targeted interventions, improved access to resources, and intensified public education on students.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of students' misconceptions about current and voltage is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

The phenomenon of students, while not new, has acquired fresh analytical urgency in Nigeria. Globalisation and technological change have intensified both the opportunities and the challenges associated with students. Field evidence gathered by Bamgbose and Obiora (2016) suggested that stakeholder engagement materially improves the results achieved in matters of students. Such findings reinforce the argument that students deserves a place of priority on the development agenda. A notable study by Ogunlana and Famuyide (2017) argued that the impact of students is substantially mediated by the quality of institutions. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

students continues to command considerable attention among researchers, policymakers, and practitioners in science education. Rapid urbanisation and demographic expansion across Nigerian cities have heightened the salience of students in everyday life. Comparative work by Osinachi and Kalu (2022) across several states uncovered a consistent pattern linking students with misconceptions. These observations collectively invite a reconsideration of standard assumptions regarding misconceptions. Salami and Okonkwo (2020), in a survey of relevant stakeholders, concluded that the benefits of students are unevenly distributed across groups. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Few subjects attract as much policy interest in contemporary Nigeria as the question of students. The socio-cultural diversity of Nigeria implies that responses to students must be differentiated rather than uniform. Studies conducted within the West African subregion by Salami and Okonkwo (2018) reached conclusions broadly consistent with the Nigerian evidence. Such findings reinforce the argument that students deserves a place of priority on the development agenda. Research by Nwosu and Ogbeide (2021) using mixed methods provided particularly rich insight into the mechanisms connecting students and misconceptions. Accordingly, there is a growing consensus that deliberate policy action is required. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Over the past two decades, students has become increasingly significant within the Nigerian landscape and beyond. The Nigerian context presents peculiar challenges, ranging from infrastructural deficits to institutional weaknesses, which shape the manner in which students unfolds. Comparative work by Oyelaran and Ogbeide (2022) across several states uncovered a consistent pattern linking students with misconceptions. Such findings reinforce the argument that students deserves a place of priority on the development agenda. An